

**AMENDMENT TO THE ABSTRACT:**

Please delete the Abstract in its entirety and replace it with the Substitute  
Abstract shown on the page attached to this Amendment.



### **SUBSTITUTE ABSTRACT OF THE DISCLOSURE**

Systems and methods are disclosed for generating a program executed by a central processing apparatus for assigning instructions of the program. The systems and methods may include dividing the program into a plurality of instruction sequences, each instruction sequence comprising a plurality of instructions not executable in parallel because of data dependency. In addition, the systems and methods may include moving an instruction sequence speculatively executable forward an instruction sequence not speculatively executable in the program and aligning the plurality of instruction sequences in correspondence with each of the plurality of buffers. Moreover, the systems and methods may include assigning a task number representing the instruction sequence and a corresponding buffer to each instruction and replacing a condition instruction by a commit instruction, the commit instruction including a condition, task numbers to be accepted if the condition is not satisfied and task numbers to be rejected if the condition is satisfied.

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**Technology Center 2100**